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OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIV MUSKOGEE, OKLAHOMA, SEPTEMBER, 1931. NUMBER 9

POISONING FROM NATURAL GAS AND ITS COMBUSTION PRODUCTS

W. B. NEWELL, M.D.
ENID

Natural gas as we have it coming from the wells in Oklahoma is made up of a mixture of Methane, CH4, and Ethane C2 H6. These are gases at ordinary temperatures. Hydrocarbons of a higher weight than this are liquids or solids at ordinary temperatures. Gasoline and kerosene are the lighter forms next to natural gas. Some of our gas however is very heavy in gasoline, of which ethane is a principal part, and the symptoms of gasoline vapor poisoning seem to dominate in natural gas poisoning. Methane itself seems to be a rather inert gas with no odor. Its presence has been demonstrated in old wells and mines by the extinguishing of a lamp. There is little effect produced by methane other than a deficiency of oxygen. Ethane or gasoline fumes, however, produce the toxic results.

Inhalation of gasoline fumes has been tried by several experimenters at various times (Haggard and Felix) and it has been found that breathing ten to fifteen grams of gasoline in eight minutes causes dizziness, nausea and drowsiness. Inhaling thirty to forty grams in ten to twelve minutes produces anesthesia. Tested on dogs it was found that breathing a dilution of 85 parts to 10,000 of air caused drowsiness, and if the concentration is increased to 156 parts the animal would fall. Recovery followed when removed at this moment after a few clonic spasms. A dilution of 192 parts caused the dog to lose consciousness and recovery followed after several convulsions. One dog died when a concentration of 243 parts to 10,000 was reached.

Men sent into tank cars without the proper protection, often exhibit symptoms of mild mania, and refuse to leave the tank. They shout, sing, and often lose consciousness before they can be forced out. They seem to lose their reasoning power. Their pulse is rapid, then slow, temperature falls and skin becomes cyanotic. Some die from the exposure in spite of the fact that oxygen may have been supplied at the same time they received the gas fumes.

From the bureau of mines (tech. paper 272 Jan., 1921), we have a statement that they have found a 2½% gasoline vapor with a high per cent of oxygen would make one dizzy, and soon become intolerable.

Natural gas is piped into our homes under a pressure of four to six ounces. Users are very careless in connecting these pipes to their fixtures and leaks are often the result. Breathing this gas has the same effect on the economy as the fumes of gasoline. At first there is a little dizziness, and possibly a headache. Next a feeling of numbness and analgesia, followed by anesthesia, and unless removed from the atmosphere of the gas convulsions, unconsciousness, and death follow.

Recovery is prompt when patient is removed, but headache and a wretched feeling follow, and continues for one or two days. In severe or prolonged gassing various late nervous effects are reported, such as weakness of the legs, vertigo, nystagmus, and tremors.

Complete combustion of the gas produces carbon dioxide and water. If the mixture is imperfect or combustion incomplete from any cause we will have carbon monoxid, and possibly some free gas.

Carbon dioxide poisoning may play a part in these poisonings in the home. It will produce unconsciousness and death if the patient is allowed to remain in its atmosphere. The excessive air hunger and closeness will make itself felt and one will endeavor to get away from it as soon as he begins to get the effect. Convulsions will develop with carbon dioxide poisoning, but the absence of oxygen seems to be the greatest danger. If there is plenty of oxygen present carbon dioxide gas will not harm, since its union with the hemoglobin is not as stable as that of oxygen.

When the combustion of the gas is incomplete and carbon monoxid is formed it is breathed and absorbed at once since its combination with hemoglobin is 300 times as strong as that of oxygen. Small amounts in the air will thus affect one even with large amounts of oxygen present. We are finding however that this compound is not as stable as was once thought. We are more or less constantly exposed to small quantities of the gas. In New York, New Jersey, tunnel ventilation is so arranged that the users will not be exposed to more than 4 parts of carbon monoxid to 10,000 of air for the thirty minutes' passage. Shumway, in 1925, reported that carbon monoxid was affecting foot policemen and that relief periods was necessary. In 1926, A.M.A. Journal, Shumway stated that eight hours on the street directing traffic caused 30% saturation of the blood but that overnight elimination was sufficient to completely fit the policeman for duty again.

One carries three times as much oxygen as the body needs normally at rest. Exercise causes us to use up to two-thirds of the quantity, but one can easily lose the reserve one-third before he realizes that anything is wrong, and may collapse on attempting exercise. Collapse at rest will require a loss of at least half the oxygen reserve. Continuous work in an atmosphere of one part to 10,000 is not dangerous, and one part to one thousand can safely be breathed for 2½ hours, so this reserve oxygen gets into the blood to some extent even in the presence of carbon monoxid.

This gas has no odor. It does not irritate the lungs and is not detected by the average person until he experiences fullness and an aching throb in the head. Lachrymation, blurred vision, weakness of the knees, followed by pain in abdomen with nausea, severe cramps and collapse come so fast that he is often unable to escape his fate. Dullness of the mind developing often causes the sufferer to overlook the earlier symptoms and he will be found prostrate upon the floor from exertion in attempting to escape; this attempt causing a faster absorption of the gas. On removing a patient thus overcome to cold air convulsions and serious nerve strains follow. It is best not to allow the body to be chilled, but because carbon monoxid tends to cling to the clothes it is often best to remove these and shake the gas from them.

Acute poisoning may be instantaneous or very similar to a stroke of paralysis when a high concentration of the gas is breathed. One inhalation may carry enough to fix the hemoglobin. This is not likely however in the homes

After gassing with carbon monoxid respirations are stertorous, rapid and deep. The face is not cyanosed. Pulse is rapid and of good quality. When he lapses into unconsciousness he will usually remain so two to eight hours after removal from the gas, awaking with a very severe headache which passes away very slowly. Some, however, pass into a maniacal delirium. Vomiting and involuntary evacuations may follow. Sleep may often have to be induced. Weariness and lassitude follow, but most of the sufferers have completely recovered in seventy-two hours with no after effects.

Many state that the appearance of one dead from carbon monoxid gas is one of health: The victim has a rosy red color. Others state that a livid blue with red bloches is the color shown. Both conditions are admissible. Hemorrhages often occuring beneath the skin.

Many mild cases of carbon monoxid poisoning come to the physician. They have headache, dizziness, possibly nausea, and delirium. These conditions may occur and reoccur without the cause being determined. Luden, in March 1921 Nations Health, reports such a case in his own family. I believe we are often consulted for such mild cases of gassing without realizing the cause.

In Prussia the opinion has been given that those who survive severe carbon monoxid poisoning sooner or later become mentally affected. They speak of this as the relapsing form, and it resembles closely some type of accident neurosis. Neuralgias are present, nervousness, insomnia, pain and intense tremors. Poor memory may be present. Partial paralyses and occasionally insanity may occur. These conditions occur in the severer cases and those advanced in years. Borman, in American Journal of Psychiatry, July, 1926, reports such a case that developed various nervous manifestations including spasticity of muscles, athetoid movements, incontinence of urine and a cloudy sensorium. These conditions gradually clearing up until mental cloudiness, irritable temper, and silly actions previously contrary to his make up was all that remained permanent.

Cases are also reported that left symptoms of encephalitis, including the Parkinsonian syndrome, that was present three years after gassing.

Examination of the blood of patients poisoned show carbon monoxid if examined within three hours but the blood cells do not seem to be affected. In the chronic type the important finding is an increase in the number of red cells to as high as seven and a half million to the cubit millimeter, and an increase in the eosinophiles. The cells are ready to take up their function as soon as the oxygen is supplied.

Bronchopneumonia or pulmonary edema are often found in victims of carbon monoxid. Many hemorrhagic spots are found over the body and throughout the brain and internal organs. The most characteristic lesion is in the corpora striatum, especially in the lenticular neucleus. Here we find thrombosis with softening. This same lesion may also be found in gasoline and natural gas poisoning.

Treatment of gas poisoning should begin with prevention since this is the best method we have. Leaky pipes are almost inexcusable. Then the adjustment of your fixtures should be correct. When these two things are done it is well to see that there is a vent to carry off all fumes, and that no down draft will bring these fumes again into the room. Cold air on the outside is liable to set up a down draft in a flue that is too large for the fixture, and if other openings are present in the flue the gasses will enter by that route. When two furnaces are using one flue the down draft may return through the one that is cold. Chimneys are often filled with soot and debris, and the vent you have thereby is of no value for waste gases. For other fires it might suffice but gas is driven in. With wood and coal a draft is necessary before a satisfactory fire can be had.

All kinds of inhalation poisoning demand first a supply of pure fresh air. In natural gas and carbon dioxide poisoning this is enough of itself, but with carbon monoxid a mixture of carbon dioxide and oxygen is advisable to hasten assimilation of the oxygen. The patients must be kept warm to aviod convulsions. Gases must be shaken off the sheets, and with carbon monoxid this is very important. Stimulants of which camphor in oil is possibly the best, may be given. No patient should be left alone after slight gassing for fear of a possible collapse, and violent exercise must be prohibited for the same reason.

If one is discovered after breathing has ceased, artificial respiration should be employed at once and continued until breathing is established or one is certain life is extinct. A recent suggestion made by Dr. Babcock of Philadelphia, to stick a wisp of cotton on the nose to make sure that your method of artificial respiration is actually producing results, is a good one.

I feel that the late complications involving the nervous system is the most serious part of gassing. The immediate effects are over in a few days at the most but when damage is done to the nerve centers there is no way of curing the condition. Encephalitis has been given as a diagnosis for these late conditions.

In concluding, I want to emphasize the great need in our modern homes—more care of raw and burned gases. We are too prone to minimize the dangers of gas and burn stoves of large and small size without any flue at all. Very often we are called into homes where the sick patient is breathing burned gases from heaters that are poorly adjusted.

———o———

"SANE" OBSTETRICS

H. J. Epstein and A. J. Fleischer, New York (Journal A. M. A., July 25, 1931), believe that the expectant mother should have the benefits of "sane" obstetrics, rather than conservative or radical obstetrics. Such "sane" obstetrics can be maintained within the sphere of the incompetent though sincere physician and of the competent though overenthusiastic physician, by education of the former as to his limitations and of the latter as to the limitations of his modus operandi. The full cognizance by these two groups of the "obstetric risk" as an actual reality rather than a mere fantasy will temper their judgments, so that the incompetent will not plunge where angels fear to tread, and the overenthusiastic will not belabor the expectant mother with heavy artillery where diplomacy will serve better for her ultimate salvation. The obstetric risk in the authors' study shows that: (1) The morbidity risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 5:1. (2) The mortality risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 30:1. (3) The total infant mortality risk in operative obstetrics was to that in nonoperative obstetrics in the ratio of 3.6:1 (ircluding spontaneous deliveries of macerated fetuses, premature infants and monstrosities). The mother of today is as fully equipped, mentally and physically, to undergo the hardships of labor as was the mother of yesteryear. A sound realization of this fact, together with a full cognizance of obstetric risk, will diminish the search for new fads to shorten labor and thereby result in a diminished maternal and infant morbidity and mortality.

ACUTE AND CHRONIC ANTRUM PROBLEMS

WM. MITHOEFER, M.D., F.A.C.S.
CINCINNATI, OHIO

In the consideration of this subject, I am well aware of the fact that some of the points brought out will not meet with general approval, inasmuch as I know there are many present here today, who treat chronic antrum disease in a conservative manner. There are some who depend largely on the correction of a nasal obstruction; there are others who attempt with intra-nasal antrum surgery, to relieve the patient of a chronic disease of the antrum mucous membrane by the establishment of ventilation and drainage. There is, however, an increasingly large number of oto-laryngologists who believe in attacking the problem in a more radical manner. I belong to the latter class.

To remove antrum pathology by relieving nasal obstruction is impossible. It is simple enough to correct a deviation of the septum, but this does not necessarily mean that the patient is going to be permanently relieved of a nasal obstruction, when there is present a chronic antrum disease. The chronic turgescence of an inferior turbinate very often produces the same amount of nasal obstruction as a deviation of the septum. The turgescence of the turbinate is many times the result of the chronic infection of the antrum mucous membrane, in view of the fact that the blood vessels of the turbinate and the antrum mucosa communicate.

Intra-nasal window resection of the antrum probably rarely, if ever, does away with true hyperplasia of the lining mucosa, but may be of considerable benefit when there is present an empyema of the maxillary sinus without hyperplastic changes. Intra-nasal window resection under the inferior turbinate is not, in our estimation, as good a procedure as an opening made in the supra-turbinal region. This latter area is along the path of the inspired air, and a large opening in this region will give better ventilation to the cavity of the antrum, than will an opening made under the inferior turbinate. We must also remember in this connection, that an infra-turbinal opening is not always at the lowermost portion of an antrum, on account of the antrum floor being many times, especially in men, on a much lower level than the nasal floor.

Some of our most brilliant results have been obtained through radical antrum-ethmoid surgery. In doing a radical antrum operation, we rarely confine ourselves to the antrum alone. The ethmoid cells are so often involved that we deem it advisable in all cases, to at least investigate this area. In some cases, we go a step further in our procedure, and remove the ethmoid labyrinth completely through an external incision. We are firmly convinced that there are very few patients in whom the complete removal of the ethmoid cells can be accomplished intra-nasally.

Pliny the Younger said, "That disease is most serious which proceeds from the head." We may add, "That disease is most difficult to cure which proceeds from the nasal accessory sinuses." In the study of these affections, one must always look for the chief offender—in other words, the master sinus; and until this is found and properly dealt with, success in the treatment will not be forthcoming. The master sinus is usually found to be the antrum; although occasionally it may be the cells higher up that are at fault.

One of the first problems that confront us is the problem of prevention of antrum infections. General and local measures must be instituted in order to prevent any infection of the upper respiratory tract. There is no question in our minds that an endocrine dysfunction is very often the cause of repeated infections of the nasopharynx. We refer chiefly to the hypothyroid state. This condition is, as you know, associated with infiltration of mucous membranes; and, in consequence of the mucous membrane infiltration, there is a lowered vitality and a susceptibility to infection. Hypothyroidism is very often present in children, and should be given consideration in the treatment of those children who suffer constantly with a cold. We make it a rule to give children who have a history of repeated colds with nasal sinus infections, a quarter of a grain of thyroid at bedtime, increasing the dose, if necessary. In adults who have a low basal metabolic rate, slow pulse, subnormal temperature between four and six in the afternoon, are constipated, and show other signs of hypothyroidism, we also institute thyroid therapy, beginning with a small dose, and increasing gradually until the affects of the drug become manifest.

We also believe that chronic intestinal toxemia is a frequent cause of infection of the upper respiratory tract. There are

many individuals who suffer with chronic intestinal toxemia, and it behooves us, as oto-laryngologists, to prescribe the proper diet in these cases. We do not believe that a diet containing much roughage is of benefit in these cases, and prefer to give the patient a so-called "smooth" diet.

The skin is considered the greatest immune organ of the body, and we therefore heartily recommend baths, massage, and ultra-violet radiation to stimulate the action of the skin. Sea-salt baths for children are especially beneficial; and a Turkish bath and massage once or twice a week has given many of our patients, who have a susceptibility to colds, immunity for a long period of time.

Allergy is now occupying the attention of many oto-laryngologists. It behooves us to give this subject the consideration it deserves; but, after all is said and done, we are still rather ignorant concerning the various manifestations of this idiosyncrasy; and have not been able, in the treatment of allergic diseases, "to look beyond the mist that fills the valley." We have been rather disappointed in the use of autogenous and stock vaccines for the prevention of upper respiratory infections. There are some individuals who are benefited; but it is questionable in our minds, whether they receive their benefit through a non-specific or specific immunity, inasmuch as we have seen the same results obtained occasionally after the use of a non-specific protein therapy.
we might mention in passing that correction of nasal obstruction, removal of infected adenoid tissue, and occasionally, a conservative intra-nasal ethmoid operation will be of benefit to a patient who has had repeated attacks of antrum infection.

One of the most important problems confronting us, is the treatment of an acute inflammation of an antrum. In the first place, let it be said that we would earnestly advise that an acutely inflamed antrum be not irrigated during the first three days. Rest, proper elimination, light therapy, internal administration of phenacetin, aspirin, and codein after meals, and hydriodic acid before meals, and the application of Bier's hyperemic band around the neck, at least twelve hours out of the twenty-four, are to be used. We prefer to give many of the patients an injection of omnadin for three successive days prior to lavage of the antrum, in order to bring up the non-specific immunity of the individual. Omnadin is composed of animal fat, lipoid of bile, and the protein of non-pathogenic batcteria. It does not produce an overwhelming protein shock; it is rather a teasing dose which stimulates cellular activity. We have seen an increase of leukocytes five hours following its use in many individuals. Most infections, as you know, originate in the pharynx and nasopharynx, and are associated with a leukopenia; therefore, omnadin which produces an increase of the leukocytes is strongly indicated in these infections.

The local measures which we are in the habit of using in acute antrum infections are the following: We prefer to use a cocaine-boracic spray which consists of eight grains of cocaine hydrochloride, twenty grains of boracic acid, to three ounces of water. This may be used every hour or two. It has a tendency to relieve pain, and at the same time to establish nasal respiration. We also do not hesitate, in cases associated with severe pain, to infract the middle turbinate. We do not approve of the use of argyrol tampons. Tampons act by osmosis, and ordinary saline solution will give the same results as the argyrol pack. Neither do we use suction because of the irritation which occasionally follows its use. In many instances, a slight puncture of the antrum may be made in the middle meatal wall with a Ritter sound No. 1, in order to attempt to ventilate the cavity or relieve pressure of the contained fluid. Change of posture may be used which will very often assist in draining the cavity. When severe pain is present, we have often found the application of 20% cocaine solution to the spheno-palatine area to be of benefit. This part of the subject may be summed up in a few words —namely, not to over-treat an acute inflammation of the nasal mucosa.

The problem of when to irrigate an antrum is an important one. As was said before, we do not believe in irrigating this cavity during the stage of acute inflammation; but prefer to fortify the patient with several injections of omnadin. Especially must we abstain from irrigating a cavity if the patient has fever; and never to continue irrigations if, following the first lavage, the patient had a severe reaction with chills and fever. Furthermore, we prefer to wait for a few days following the first lavage if there is a local reaction in the nose in the form of a fibrinous deposit at the site of puncture. Three deaths as a result of pyemia, follow-

ing irrigation through the normal orifice, have been reported from Siebenman's Clinic, in Basle. As you know, any number of deaths have been reported that were believed to have resulted from embolism.

The usual site for proof puncture of the antrum is under the inferior turbinate. We prefer the region of the middle meatal wall for puncture, and use the following solution which is Fischer's modification of Ringer's solution:

Sodium chloride	263.7
Dry Calcium chloride	21.0
Potassium chloride	10.6
Aqua dest	1000.0

Twenty-five c.c. of this stock solution are placed in four hundred and seventy-five c.c. of sterile water for irrigation. The calcium contained in this mixture has a tendency to relieve the oedematous, swollen mucous membrane of the antrum. It occasionally happens, however, that patients have a severe reaction from the use of any watery solution, and in these individuals, we have found an irrigation with ordinary sterile mineral oil to be less irritating. The oil mixture does not allow the liberation of the bacteria as easily as does the watery solution.

The method of irrigating through the middle meatal wall is easily accomplished. It is far easier to puncture, if necessary, a membranous wall, than it is to attempt proof puncture through a bony wall. Our first step is to examine carefully the topography of the part by using a Ritter sound No. 1, and proceeding from behind forward, along the lateral wall in order to ascertain, if possible, the presence of an accessory opening. We know that thirty-three per cent of the skulls have accessory openings; and it is advisable, therefore, before proceeding with the lavage to learn if the patient before us is one of these individuals. If there is no accessory opening, we proceed forward, and attempt to find the normal orifice. If this cannot readily be found, the Ritter sound is placed along the lateral wall, opposite the middle third of the middle turbinate, and in a direction from above downward, the wall is punctured. After the middle meatal wall has been punctured, a Siebenman canula is introduced. This is more easily done if the eye remains focused at the spot where the Ritter sound first entered the membranous wall. We have been able to irrigate about ninety-eight per cent of our antra with this method.

There are a considerable number of patients in whom the antrum infection is the result of an infection in the ethmo-sphenofrontal area—in other words, cases in which the antrum is acting as a reservoir. In these patients, we are often able to relieve the secondary antrum infection by caring for the ethmo-frontal region—many times in the form of surgery, intranasal or extra-nasal. It is often very difficult to definitely state that an antrum is acting as a reservoir. Lipiodol tests may show no filling defect, or perhaps only slightly thickened membrane. We often make use of a tampon for purposes of diagnosis. The antrum is irrigated until the irrigating fluid returns clear. One or two tampons are then placed in the middle meatal region between the middle turbinate and the lateral wall in order to block off entirely the drainage from above. Six hours later, the tampon is removed, and if the same contains pus, we are certain that we are having drainage from above. The antrum is again irrigated. If the fluid is clear, we feel reasonably certain that the antrum is acting as a reservoir for the pus from above.

There is another form of suppuration in the middle meatus that very often simulates antrum disease. This is the so-called "hiatus suppuration," which was described by Gruenwald. In the inferior hiatus region, there is very often a large concavity of the lateral wall, which, when it becomes infected, may simulate antrum disease. In these cases, the fluid is usually clear until the end of the irrigation, when a large plug of muco-pus makes its appearance. When lavage of the antrum shows this plug of muco-pus to be present, we must think of the possibility of a hiatus suppuration, and not immediately look upon the antrum as the real offender.

The chief problem which concerns us, as oto-laryngologists, regarding the antrum, is probably the surgical method of approach. As was said before, the profession is undoubtedly divided into three classes: the conservative; the intra-nasal; and the extra-nasal. One thing is certain —before deciding on any method of operating, it is advisable to make a careful analysis of the case before us. This does not mean that we should spend weeks studying a patient with nasal polyposis. A diagnosis of antrum hyperplasia can be made within a few moments in these cases. I refer to the large number of borderline cases that are frequent visitors to the of-

fices of oto-laryngologists; and in whom it is very difficult, without a careful analysis, to make a diagnosis of a hidden focus in the antrum. If the focus of infection in the antrum is overlooked, and a simple intra-nasal operation is done, there will, in all probability, be present after operation, an acute flare-up of the chronic antrum disease. We have all seen an acute flare-up of a chronic antrum following a septum operation. It is our contention that it shows poor surgical judgment to do a septum operation in the presence of a latent antrum infection, unless the antrum is dealt with at the same time. If the case before us is analyzed carefully prior to operation, it may be necessary for us, at the time of doing a septum operation, to investigate also the condition of the interior of the antrum and the ethmoid cells. We have found less reaction after so-called "radical" surgery of the sinuses than we have found following the simple operative procedures in the nose. The reason for this is quite obvious. When all infected tissue is removed at the time of the first operation, there is less danger of reaction. A word of warning, however, is necessary. If there is present a purulent discharge in the nose, and culture shows a streptococcus hemolyticus infection, we should abstain from operation for a short time, unless urgent symptoms are present. In the meantime, the patient should be fortified with non-specific protein therapy; and, if necessary, an autogenous vaccine should be given.

The X-ray film and lipiodol instillation into the antrum are important and instructive adjuncts in the analysis of the case. It is wrong, however, to rely entirely on these findings. We have seen patients in whom X-ray was negative and the lipiodol test showed no filling defect, but the clinical examination made us feel that there was present a hyperplasia within the antrum. At the time of operation, marked hyperplasia was found in the various recesses of the antrum, with the cavity of the antrum free; therefore, the negative findings upon X-ray examination and the instillation of lipiodol.

When a radical operation on the antrum is contemplated, we should never finish with the same until we have investigated thoroughly the region of the ethmoid cells. We are firmly convinced that many times the ethmoid cells dip into the cavity of the antrum (cells of Haller) and these can only be reached through an opening made in the canine fossa.

The operation itself should, if possible, be done under local anesthesia with blocking of the nerves in the posterior palatine canal, in the region of Meckel's ganglion, and along the lateral wall of the nose opposite the middle turbinate. The gingival margin should be infiltrated. We are in the habit of using a solution containing:

Novocain	0.5:1.0
Solution potassium sulphate (2%)	20.0
Solution sodium chloride (0.9%)	100.0
Adrenalin gtt.	1 to 4.0

The addition of the potassium sulphate to the novocain solution enchances the value of the novocain, with a longer anesthetic action following operation.

The incision should be made as low down along the gingival margin as is possible. An incision made higher up may cut the buccinator gland and may give rise to infection in this gland. There is, furthermore, less post-operative swelling of the cheek when a low incision is made. Sufficient bone should be removed from the fascial wall in order to get a good view of the cavity. If possible, a part of the anterior inferior wall should be retained, in order to prevent cutting the anterior dental branches. The bone should be removed, however, in the anterior upper angle in the region of the prelacrimal recess. This part of the cavity is very often overlooked, and if the infection is not thoroughly removed from this area, continued discharge following operation may be present. The cavity should not be curetted; instead, the hyperplastic membrane should be elevated. Occasionally, one must use gentle curettage in the region of the recesses. Before finishing the operation, small laryngeal mirrors should be placed in the cavity of the antrum, and every angle carefully inspected. If the ethmoid cells are involved, as they usually are in hyperplastic cases, the greater portion of the middle meatal wall should be removed and the ethmoid cells exenterated. The middle turbinate, if it is not very much involved, may be preserved. A counter-opening, with or without flap formation, is the finishing step of the operation. When the radical antrum-ethmoid operation is completed, we have two counter-openings on the lateral wall, one above, the other below the inferior turbinate; and, if the frontial sinus is not at fault, healing will take place rapidly. We prefer to pack the antrum cavity with iodoform gauze for at least two or three days. We believe that this very often pre-

vents a saprophytic infection following operation.

In the after-treatment, little should be done during the first week. The patient should be relieved of pain, if possible. At the end of a week, the cavity is irrigated in order to remove any blood clot; and, if possible, we abstain from further irrigation unless a saprophytic infection has taken place. Each patient is given an intra-muscular injection of omnadin, each day for the first three days following operation.

We are probably all in agreement with the thought that nasal sinus surgery has fallen into disrepute. We cannot hope for good results in our surgery of the nasal sinuses unless we decide once and for all what sort of a position we are going to occupy in our method of operating. If we insist on being intra-nasal surgeons instead of extra-nasal surgeons, our results will not be gratifying. I have tried both methods, and am firmly convinced that unless a careful analysis is made of every case before us, and the sinuses radically dealt with, our efforts will very often be in vain.

On conclusion, I would therefore say, study each case well; do not attempt intra-nasal measures in the presence of marked pathological changes of the sinuses; and above all, by means of the various diagnostic methods at our command, look for the master sinus and eradicate the hidden focus present therein.

19 Garfield Place.

MORE AND MORE DOCTORS USING DELICIOUS FOOD DRINK IN CASES OF MALNUTRITION

Cocomalt, the new chocolate flavor food concentrate, is rapidly gaining favor among the medical profession, as evidenced by its increased sale to hospitals and institutions.

Splendid results have been reported in general cases of malnutrition; but especially among children has Cocomalt convincingly proved its power to quickly add weight to the malnutritious child. By actual test Cocomalt adds 70% to the caloric value of milk. Yet it is so easily digested, so readily absorbed, that it is acceptable even to the most weakened digestive system. Furthermore it contains malt enzymes which help to digest the starches in other foods.

The makers of Cocomalt particularly wish to remind doctors and nurses that Cocomalt is not a powdered chocolate, not a malted milk, not cocoa, but a scientific food-concentrate of high nutritive value.

EYE COMPLICATIONS FOLLOWING HEAD INJURIES*

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TULSA

Head injuries form a class of cases that are difficult to classify and impossible to draw definite statistical conclusions, due to the difficulty of approaching a diagnosis, and the impossibility of comparing end results with the condition of the patient prior to injury.

The X-ray is a great aid in diagnosis but only too often when the surgeon opens up a skull he finds entirely another picture, which would justify the conclusion that a report of a negative Roentgenogram is of no more value than a negative Wassermann.

Traumatic psychosis, a much overworked dignosis, has been used rather extensively to the detriment of the patient's welfare, then the ophthalmologist comes in for his share, by a percursory examination of the fundus through a small pupil, giving a negative report.

Head injuries either die or recover to the extent that they are dismissed as cured, often only to find that they are incapable of taking up the old routine of existence due to indefinite symptomatology, which is so indefinite that he does not know where to turn for relief, usually he consults a varied assortment of medical talent and acquires an assortment of glasses.

The ophthalmoscope offers an opportunity to observe the condition of the fundus, often giving valuable information to the surgeon as to diagnosis and progress of patient's condition. The presence of a choked disc when discovered early allows the surgeon to handle the case so that the vision can be conserved, as well as giving him direct information as to the progress of the case, making it possible to intelligently await developments or to proceed with surgery before it is too late.

When patient is conscious the visual fields should be checked for form and color, a contraction of the blue and yellow fields is suggestive of an involvement of the perceptive area of the retina, which may involve the conductive area and ultimately become a permanent defect.

*Read before the Section on Eye, Ear, Nose and Throat, Annual Meeting Oklahoma State Medical Association, Oklahoma City, Oklahoma, May 11, 12, 13, 1931.

There is a marked divergence of opinion upon the treatment of these cases. From an eye standpoint I believe in a spinal puncture with a slow removal of spinal fluid, until there is very little pressure left in the spinal canal. I have seen two cases that had a temporal hemianopsia that spinal puncture cleared up the visual field defect in twenty-four hours, only to return the next day, at which time another spinal puncture was done with equally good results. It is my opinion that all cases of head injury who have swelling of the optic nerve or a progressive diminution of color fields, and who does not need intra-cranial surgery, should be given the benefit of as many spinal punctures as are necessary to effect a relief of symptoms.

The effect of the withdrawal of spinal fluid can be noted on the fields, when there is no evidence of pressure in spinal canal, it is rarely necessary to do more than three punctures to effect relief, which occurs along with improvement of general condition of the patient.

All head injury cases should be carefully checked on dismissal for visual field defects. If there is a defect present, the patient should be re-examined at regular intervals to see that it is not progressing, if so the surgeon should re-check the patient.

The muscle balance is often disturbed, causing difficulty in fusing objects which makes it easier for the patient to suppress the image than to fuse objects, ultimately losing binocular vision and visual acuity in the eye that is not being used. This can be avoided by the use of fusing exercises. I have seen several cases of amblyopia that gave a history of a concussion of the brain, which was considered of little importance at the time of injury, but which had not recovered from the muscle imbalance, consequently becoming an individual without visual perspective and with a narrowed field of vision.

To illustrate the importance of eye examination I report the following cases.

A. B. Age 19, injured in an automobile accident, April 5th, 1931. Diagnosis: Fracture in base of skull, radiological examination negative, patient in severe shock, pulse ranging from 58 to 70. Examination of eyes, pupils reacted to light and accomodation. Right eye media clear, fields for form and color normal, fundus negative. Left eye, media clear, retina clear. Blood vessels showed congestion of veins, ratio of 2 to 1 to arteries, the optic disc was swollen two diopters, more marked in upper nasal segment, visual fields were normal except for enlargement of the blind spot.

A spinal puncture was done on the eighth day, the spinal fluid was bloody and under a moderate amount of pressure, the following day fundus examination revealed a decrease in venous congestion and swelling of the optic disc. The blind spot continued the same size. On the following day the left fundus examination was negative, and the blind spot was the same size as that of the right eye.

Thirty-two days later patient reported to the office for examination, complaining of diplopia and severe headache in frontal region. Fundi were negative, fields for form and color normal, media clear, vision 20-20 in each eye under homatropine, patient's vision was 20-20 with a plus .50 sphere. The muscle balance test showed an esophoria of 18 prism degrees, the image was being suppressed in the left eye. After three months training esophoria was reduced to 3 prism degrees, and binocular vision was present. Exercises were discontinued; three months later patient's muscle balance was normal.

Case No. 2. Age 23. December 1st, 1930. Hit over the right eye with a piece of pipe fracturing right frontal bone. The fracture extended back into the orbit, depressing the right eye brow one half inch, causing a severe contusion of the orbit and hemorrhage in the anterior chamber, which made it impossible to examine right eye. Patient was first seen three days after first operation. Left eye examination was negative, patient was unconscious, the X-ray showed only a small spicule of bone pressing down on frontal lobe. Patient was reoperated and a large piece of bone was removed, and the right supra-orbital ridge was elevated and brought forward and a drain was inserted into lacerated brain tissue. Patient's condition improved until the fifth day after the operation when he began to show signs of intracranial pressure. Examination of the eye revealed a choked disc in the left eye of five diopters, with a complete temporal hemianopsia, the right eye was still too clouded to get details of the fundus.

A spinal puncture was done, getting only a moderate amount of clear spinal fluid which when examined was negative. Two days later another puncture was done,

spinal fluid was still under no tension. However, thirty-six hours later the temporal hemianopsia had entirely disappeared. Unfortunately I was not able to see patient so that I could study the return of the color fields. The patient had an uneventful convalescence, reporting for examination at the office January 12th, complaining of diplopia.

Eye examination revealed the following findings: Right eye vision 20-60; pupil moderately dilated but reacted to both light and accommodation, lens and vitreous clear, retina showed a rupture in choroid in lower quadrant two and one-half disc diameters long. Otherwise, retina and blood vessels were normal. The temporal side of the optic disc was distinctly paler than the nasal side, there was no elevation. Visual fields were contracted on the temporal side for white, blue and red, there was a total absence of green perception in any quantity, under the strongest illumination.

Left eye, pupil normal in size and reacted to both light and accommodation, media clear fundus negative, no paling of the disc could be noted, fields for form and color were normal.

Refraction under homatropine improved the vision of the right eye to 20-40 with a plus .75 cylinder axis 75, left eye plus .75 cylinder axis 90; muscle findings were esophoria, two prism degrees, hyperphoria, six prism degrees.

Patient has been using right eye for a few minutes each day and had on April 20th visual acuity of 20-20 minus 2, and a hyperphoria of 1 prism degree with normal fields for both form and color.

C. D., age 24. Hit on right side of head by a piece of pipe, October 1929, was knocked out for a few minutes only and was treated by company doctor but was not confined to bed, had negative X-rays. The patient returned to work two months later but found that exertion caused severe pain in head, radiating from eyes back to occipital region, and occasional attacks of dizziness.

After repeated examinations he was hospitalized for observation. X-ray showed small depressed fracture of right parietal bone on line with a line drawn between the ears, about one inch from the articulation of the parietal bones.

Examination of eyes, November, 1930: Right eye: Vision 20-20, pupil regular, reacted to light and accommodation, media clear fundus negative. Visual fields showed a 25 degree contraction on temporal side, and the blue and red fields were the same size as the green.

Left eye: Vision on 20-20, pupil slightly irregular, reacted sluggishly to both light and accommodation, form field was contracted 25 degrees on temporal side. The color fields showed contraction of blue and red on temporal side, the green field was normal. The left eye deviated out about 10 degrees.

The skull was opened and areas of depressed bone was elevated, the dura was adherent and thickened under fracture.

Examination of eyes, February, two months later, showed the pupils regular, reacted to both light and accommodation, media clear fundi negative, fields for form and color normal and the muscle balance normal or 2 prism degrees of esophoria.

CONCLUSIONS

In conclusion I would like to emphasize:

1. The need of closer cooperation between ophthalmologists and surgeons.

2. The importance of complete eye examination in all head injuries.

3. Visual field findings are an aid to the surgeon in diagnosis and treatment.

4. Early diagnosis of muscle imbalance, makes it possible to institute corrective measures and effect relief in a large number of the visual complications of head injuries.

5. Brain injury symptoms are vague and indefinite, often taxing the diagnostic accumen of the neurologist to the utmost.

6. The stigma of malingerer, and the diagnosis of hysteria should only be arrived at after complete examination of the patient.

DIABETIC COMA WITH MARKED HYPERGLYCEMIA AN RECOVERY

P. A. Gray and W. D. Sansum, Santa Barbara, Calif. (Journal A. M. A., July 25, 1931), report a case of diabetic coma with the marked initial hyperglycemia of 900 mg. per hundred cubic centimeters of blood. Recovery followed intensive insulin management.

OCULAR SYMPTOMS AND COMPLICATIONS OF DIABETES MELLITUS

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The essential factor of diabetes is inability to utilize sugar, rather than the over production of sugar, that is why we are unable to produce it experimentally without removal of the pancreas. The pathological changes in the pancreas are not constant with the severity of the diabetes. A very serious type of diabetes may show little or no pancreatic pathology, while on the other hand a low-grade diabetic might show considerable pathology in the pancreas. Changes in the blood vessels for the most part are atheromatous. The walls of the vessels of the eye and brain are much thinner than those of the corresponding size of the skin and muscle. When an atheromatous vessel ruptures, it bleeds quite freely, as it is stiff and hard and is unable to contract.

Getting to the ocular findings let us start with the skin. There is a condition of the body and lower lids known as xanthoma diabeticorum, the nature of which is deposits of cholestral and other lipoids into the skin and orbicularis oculi unually on the lower lid. An internist told me that he had recently had a patient with such large plaques that they interferred with his reading. The xanthoma we see is not always associated with diabetes as it is the type only found on the lids. Several dermatologists have told me that their findings were the same as ours, although the general practitioner associates this lesion with diabetes, especially when it is generalized over the body.

Styes and chalazions are sometimes seen in diabetes but they are mostly due to a recurrent infection. A vaccine is occasionally of some value. The best treatment we find for recurrent infection is persistent use of some type of eye wash four times a day from thirty to sixty days. We usually alternate between 1 to 8000 metaphan wash and 1 to 5000 bichloride of mercury, then changing to some other wash as boric acid, perhaps alternating these washes five or six times before the course of irrigation is finished. Ulcers and different forms of keratitis are rare.

Now, pure uncomplicated cases of diabetic iritis are extremely unusual and if they are not promptly treated and the patient does not respond promptly to the treatment the eye is usually destroyed. The ordinary type of iritis seen in diabetes is a more serious type with very little exudate put down at the pupilary margin. There is a marked tendency to hemorrhage. In fact, there are very few cases in our experience that do not have some degree of hemorrhage. The course of the iritis is long and resistant to treatment and there is a marked tendency to reoccur. You will most always find some other factor outside of the diabetes that causes this iritis, such as a tooth, tonsil, etc. I might further state that we most always find this iritis in people past forty years of age. Young adults and children rarely have iritis and when they do it is usually disastrous to the eye.

Amblyopia is sometimes seen in diabetes. The following case will illustrate this: A woman 54 years of age, weighing 280 pounds, had been fat the past twenty-eight years. The fat preponderence was that of a pituitary type. She complained of failure of visions for the past six months and only three months ago found that her urine was heavily laden with sugar, albumin and a few casts. On examination we found the visual fields in both eyes to be contracted to within ten degrees of the point of fixation, perception for color remained. There was an indistinct central scotoma. The fundus showed only that of a sclerosis with a slight fullness of the veins. There was no evidence of any intra ocular degeneration or inflammation. The first blood sugar was 430 milligrams. She was immediately sent to the hospital and a brain lesion and foci of infection was ruled out. At the end of 48 hours on diet her blood sugar had dropped to 216 and the vision greatly improved. During the next four days she was given ten units of insulin twice a day and the blood sugar dropped to 110, following a great improvement in the ocular condition. The central scotoma was present in the left eye but it practically cleared in the right eye. By the end of the twelfth day this woman's field of vision was normal and vision with her glasses on was 20-20 minus. Her vision when she first consulted us was 20-400 with her glasses on. The best explanation for amblyopia is the increase of toxic substances of diabetic metabolism, that is, acetone, diacetic acid and beta oxybutyric acid. Amblyopia is well known in all metabolic diseases. The prognosis is good when put under proper treatment, provided the am-

blyopia is not too long standing. A German writer reported eighteen cases of optic neuritis out of 486 cases of ocular manifestations of diabetes. It is always associated with some other infection just as iritis is and its course is very similar to that of iritis.

When ocular muscle paralyses are met with in a patient with diabetes always look for something else. Hyperglycemia and glycosuria and symptoms of diabetes are often found following encephalitis, thyrotoxicosis, diseases of the adrenals where there is an incerased function, and hyper-function of the anterior lobe of the pituitary gland. Some of these cases, of course, are not true diabetes. The hyperglycemia being a compensatory type and insulin has to be given with great caution as a severe reaction might be encountered. As you know many eye conditions are encountered in goitre, especially of the extra ocular muscles. Some of these cases run a course similar to diabetes. The pituitary cases produce field changes and optic nerve pathology and some of these cases run sugar. The more common pathology of the ocular muscles in diabetes in our findings are spasm, or paralysis, or loss of accommodation. This is seen only when the blood sugar is high and is relieved immediately by insulin.

A patient in diabetic coma often shows a hypotonia of the eye ball. This is based on osmotic pressure. There are sudden variations in refraction noted in the young adults. I recently read an article reporting a case where there were five diopters changed in a few weeks, in a young diabetic. We have had several cases where the variation was as great as one diopter in a period of thirty days. The rapid variation and refraction is not the rule in diabetes past forty years of age.

Injuries about the head produce a rapid rise in blood sugar in a diabetic.

A case to demonstrate this was a laborer 34 years of age whose pick struck a part of a stick of dynamite. It exploded, blowing gravel and dirt into his face and eyes. I saw him in the hospital about two hours after the injury. He was cold and clammy; had a pulse of 120; being in a state of shock. He was cleaned up and the foreign particles removed without a general anaesthetic; no sight being destroyed. He was then put to bed; the urine was examined and found to be heavily burdened with sugar. He then told us that he was a diabetic taking ten units of insulin twice a day; a blood sugar was run and found to be 210. He was immediately given ten units of insulin. The following morning another blood sugar was run before breakfast, about fiften hours after the accident. The report came back 360 milligrams of sugar. He was then given forty units of insulin that morning and forty in the evening; the second day the blood sugar was down to 240 on a diet of 50 grams of carbohydrates, 70 of proteins, and 100 of fats. That day he was given thirty units of insulin in the morning and evening. Five days later he was able to maintain that diet on fifteen units of insulin twice a day. About a month later I received a letter from this man's physician stating he was sugar free on twelve units of insulin twice a day.

The two most common findings in diabetes are cataract and retinitis. Some physicians report a higher percentage of cataracts than of retinal changes, while others make the reverse statement. Of these two we will consider cataracts first.

The true diabetic cataract is seen most frequently in young diabetics. It may be precipitated after a diabetic coma, acidosis. Cases are reported of lens opacities developing in three months following acidosis. Some of these opacities in the lens clear up after treatment; this being practically the only cataract that responds to medical treatment. Diabetic cataracts always are bi-lateral. The cause is not sugar alone but some of the factors in faulty metabolism that give the upset. Diabetes in children and young people usually runs an extraordinarily stormy course due to the rapidity that they can go from insulin shock to acidosis. This is the reason why young people have cataracts. The type of cataract seen in a diabetic past 50 years is usually of the ordinary senile type. Let us remember and always be suspicious of diabetes being a factor in a patient under 55 years of age who has cataracts. The best explanation is vaculization of the cells of the posterior surface of the iris with increased pigmentation, hence producing a disturbance of nutrition. The lens receives part of its nutrition from this area.

The operative treatment of cataract in diabetes is slightly more hazardous than that of non diabetic origin. However, I would rather be responsible for a patient with cataract and diabetes than one that has had a low grade cyclitis with deposits on the posterior capsule of the lens with

periods of quiescence. We always explain chances of complications to the patient before operating. They are kept in the hospital long enough to get absolute control of the blood sugar by a diet and insulin. We always want the urine sugar free and the blood sugar below 150, if possible. When this is accomplished and all of the foci of infection removed we take the patient to operation. Five per cent cocain is used and 2 or 3 drops of adrenalin instilled into the eye. We never do any orbital injections of novocain as several serious disastrous results have followed, and especially where there is a hypertension and adrenalin is used in the novocain. We use as little adrenalin as possible in all cases of hypertension, and then only in the conjunctiva. We never operate on any cataract without some sort of a stitch. If the pupil will dilate widely we do a peripheral iridectomy. If the dilation is poor, a complete iridectomy is done. We practically always do a capsulotomy and irrigate the anterior chamber. The patient is kept on a soft diet for six or seven days and the blood and urine watched daily. I always like to increase the insulin five or six units to guard against any rise in sugar due to excitement, anxiety, or whatever shock may result from the operation.

Retinal lesions are more common in our practice than cataracts. It might be a fair estimate that they are at least three to one in comparison to cataracts. Since the introduction of insulin lipemia has become a rare finding. It is usually in cases that have been treated with diet and without the aid of insulin. The estimates of fat in the blood run from 4% to 8% before the retinal vessels show this characteristic picture. I have noticed in reviewing the literature that there are very few cases reported in the last ten years to what was previously reported before insulin was given to us. One of the most striking cases I have ever seen was in a young Hindu in the Government hospital in Delhi. The most frequent lesions in the retina are small white patches of fatty degeneration and scar about the macula. They are often only dots but later fuse together, sometimes giving the appearance of cercinate retinitis. Hemorrhage is frequently seen between these spots. It must be remembered that a nephritis whether it is active or inactive is invariably found in diabetes and it is often impossible to distinguish between retinal changes due to nephritis and to diabetes. Hemorrhage is another common finding. Some authorities give a patient two years to live that have retinal hemorrhages. No doubt this is a terminal warning of the life of a diabetic as the vessels are usually sclerosed and the damage is already done and cannot be repaired, although if the patient keeps up the use of insulin and the blood pressure and kidney involvement are controlled I don't see any reason why they should not go perhaps as long or longer than any case with the same type of arteriosclerosis provided some intercurrent infection does not enter into the picture. When a foci of infection is present in a case of diabetes, destruction of vessels will be activated. It is well known that nothing destroys vessels any quicker than diabetes foci of infection, syphilis and tuberculosis.

We have watched a woman 58 years of age for the past three years. She first came in with a detached retina and a hemorrhage on top of the detachment and iritis. We were very suspicious of an intra ocular tumor. At that time her urine was sugar free but the blood sugar was 178. She had several dead teeth that were extracted and the eye immediately cleared up. Her eye remained quiet for over a year, the eye findings showing no evidence of tumor. She again had a hemorrhage and iritis and a dead tooth was removed. She was urged to have a tonsillectomy but refused. The last of January of this year she had the third attack and iritis and further detachment. We were unable to make any headway with this last attack. She was sent to the hospital the first of March, the average blood sugar being 196 throughout the 24 hours and the urine being sugar free, the pthaline test for kidney excretions was very good. At that time she was taking twenty units of insulin a day with a diet of approximately thirty-five grams of carbohydrates, seventy of proteins and ninety of fats. Her insulin had to be increased to fifty-five units a day to lower the blood sugar to 160. Her iritis immediately began to clear up but the detachment was still present. A diagnosis was made of an exudate from a foci of infection plus diabetes, as no further symptoms of tumor developed, although we haven't forgotten the fact that tumor can remain quiet for a number of years.

In closing, I want to say, always look for something further when ocular conditions are found in a diabetic patient. A patient with such a disease where metabolism is so upset, becomes fertile ground for all sources of infection.

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IONIZATION

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ENID

In presenting this paper it is our desire to give briefly our limited experience with this modality. Hoping thereby to stimulate free discussion which may be beneficial to all.

The application of medicine by the process of electrolysis, when first presented to me, sounded just like "one more thing to try out." We presumed it would have the same results in our hand as diathermy, the ophthalmometer, and many other things, *namely*, the scope so limited that the results scarcely justified the means. We are not speaking disparagingly of these modalities except in our own hands. There are those who satisfy their requirements with every kind of instrument, apparatus, and medicine manufactured. There was a time when we had to have colored lenses to filter the actinic rays, because of their irritating effects, from the eye. Time has permitted science to disclaim their established fact in this particular and so time proves the falsity of many perfectly reasonable and apparently useful modalities in our armamentarium. This paper is presented with only one thought in mind; to help determine the true practical value and merit of ionization, as it is possible to use in our every day work.

We have used two solutions only in our work. Zinc chlorid and sodii salicylate. We doubt not there are many others that may be better and shall be glad to learn the way that any one may be successfully using them. The Zn. ion has many acclaimed virtues, which all of us are more or less willing to admit. The one most responsible for its merit in ionization is its affinity for albumin. This action has made zinc a popular escharotic for years by sealing the wound and in a measure sterilizing it. The Zn. ion has a so called predilection for diseased tissue, this we doubt, believing the action to be due to the lessened resistance of the pathological tissue, hence it is first to fall before any physio-chemical attack. The results are the same but some definite idea of the action we believe necessary to properly understand and explain the effects of ionization in the diseased areas. The current necessary to carry on effective ionization is a direct one delivering from 60 to 120 volts and capable of a milliampere output of 40 to 50. The positive terminal should be marked so as to easily identify it, as either the positive or negative is used as the active electrode. In the application of Zn. the positive is used and in the application of sodii sal. the negative is used as the active electrode. There are many details as to the application of the electrodes to the parts to be treated; such as size of electrode, protection of diseased areas, proper insulation which can be obtained from any article or text on treatment by ionization.

We have used only two solutions in our work, zinc sul. sol. ($ZnSO_4$ 5 gms., glycerine 57 c.c., H_2O q. s. 1000 c.c.) and sodii salicylate 2% sol. and a sodii chloride 1% used on the indifferent electrode. The above named solutions are all diluted with an equal amount of water before using.

We have employed sodii salicylate by this treatment in four cases of furunculosis external auditory canal. In every instance the patient slept the succeeding night when sleep had been denied the two or three preceding. In two cases the process underwent prompt resolution with recovery. The other two formed abscesses, were drained and promptly healed. The pain was inconsequential in the two abscess cases after the treatment.

The two antrum cases treated were flare-ups after the extraction of a tooth. They had both had trouble in the antra one and two years previous. No trouble in the intervening time. The dentist had treated both cases for about ten days. Both were discharging large quanities of pus and one had lost about twenty pounds in weight. Both were quite sick but neither were confined to bed. In the milder three treatments relieved the patient of all symptoms. The other, after two treatments three days apart was relieved of most of his trouble. In two weeks he returned complaining of odor and pus. We gave four more treatments and the patient hasn't had any trouble since, save when he takes cold, he is always afraid the antrum is going to flare-up. He says he knows it is there at these times and it aches a little.

In two cases of trench mouth three treatments in one and four in another cured them. The treatments were given daily.

In one severe case of eczema of both

external auditory canals, auricles and cheek in front of ear, one ear five years standing, the other two years standing, canals practically closed and weeping, our results were most gratifying. The patient had received all kinds of medical treatment from two ear, nose and throat men and their family physician, and ultra-violet from another, all to no avail. This patient was very indifferent as to regularity of her treatment. She did not continue treatments as long as we desired, but came into the office after six weeks had elapsed since last treatment with both ears entirely well and normal. I gave this girl a salve to use between treatments which may have had some influence on the course of the eczema.

We have tried ionization on several acute frontals making application directly over sinus with active electrode and have had very gratifying results. It relieves the pain admirably. Sodii sal. was used in these cases.

We have used it in three or four middle ear cases with questionable results. This should be the ideal location for this treatment, but as most of the cases of purulent otitis media are in children, we have not tried to make application to them. The cases referred to were what we chose to call chronic recurrent; they go for four or five months dry, then discharge a month or two. We doubt the effectiveness of any treatment save a mastoidectomy in such cases.

These were the cases we have tried to observe for trial and were highly pleased with the results.

We have used sodii sal. in all cases of pain and zinc when there was no pain and pus, both solutions in the eczema and also in others of the series.

Judging from our limited experience we are inclined to believe ionization has a place in the treatment of many poorly drained cavities, furunculosis external auditory canal, and many other diseases where low grade infections may be a causative factor.

We welcome your criticism, and urge you to give us your experience with this modality as to whether in your hands it has or has not been beneficial.

TONSILS AS FOCI OF INFECTION*

L. C. KUYRKENDALL, M.D.
McALESTER

Recent years have seen wonderful advances made in all lines of endeavor but more particularly in medicine. I think the greatest advance in medicine has come about through the study of focal infection and in that particular the head with its possible points of foci of infection has perhaps played the major role, especially in so far as the tonsils are concerned. There have been, of course, radicals who were able in their own mind to see in every tonsil examined a diseased condition and as a result enucleated these tonsils with the result I am afraid that many, many tonsils were unnecessarily sacrificed. I am sure that not all tonsils are diseased. On the other hand careful inspection reveals diseased conditions of the tonsils often times where only a perfunctory examination would not disclose the infected area. Much has been written on the subject of the tonsils as a foci of infection. Most of it timely and good, but I feel that we have only touched the surface as regard the tonsils.

The tonsils are evidently the basis or foundation of many complaints which heretofore have been obscure or their etiology been hidden to such an extent that it was impossible to determine the basis for the diseased condition. I have tried to maintain a neutral attitude toward the tonsils but recent years have shown me that possibly I have overlooked cases of infected tonsils because of too superficial examination of them. Not everyone I regret to say is able to make a real examination of the tonsils. The mere placing of the tongue depressor on the tongue and looking into the pharynx is not sufficient, but you must see the entire surface of the tonsil as well as expose to view the superior fossa and this can only be done by means of instruments devised for that purpose. A large tonsil or a small tonsil either for that matter does not necessarily mean it is diseased and that it should be removed. The age of the patient often determines the size of the tonsil, it being infrequent to say extremely large tonsils in a person more than 30 years of age. I do not mean to say that all young people have extremely large tonsils nor that

*Read before the Southeastern Oklahoma Medical Association, Durant, Oklahoma, Wednesday, December 17, 1930.

everyone over 30 years of age have extremely small ones. We know the tonsils begin to atrophy immediately after puberty. Sometimes an atrophic change is rather rapid and by the time the individual is 30 years of age there is very little lymphoid tissue left. On the other hand we infrequently find quite large tonsils in persons as much as 50 years old. The eldest patient I have ever operated for the removal of tonsils was 74 years of age, the youngest 18 months.

There seems to be no class or sex distinction, in that the poor as well as the rich, male as well as the female, are about equally affected. Throughout the body lymphoid tissue is well distributed, being found in the mucous membrane of the alimentary and respiratory tract, the vermiform appendix, Peyer's patches, the spleen and the lymphatic glands. Lymphoid tissue is a reticular connective tissue with a great many lymphocytes within the meshes.

The faucial tonsils are two in number. One on either side of the throat placed within the faucial sinuses and in their development each tonsil forms in two sections, the superior and inferior, which within a short time after birth coalesce to form one mass. It sometimes being difficult to determine the dividing line between the superior and inferior section of the tonsil. The superior pole of the tonsil often is placed so high in the substance of the soft palate that it is with difficulty that we are able to see that part of the tonsil, and in all cases except where the root of the tonsil is pedunculated the anterior folds cover the triangle of the superior part of the tonsil, in other words the supratonsilar fossa is hidden from view. Due to this condition it is the most important part of the tonsil to be seen in an examination and I do not think an examination of the tonsils is complete unless you have thoroughly examined the fossa.

The capsule is a compact, tough, thin membrane surrounding the tonsil on all sides except that part covered by the epithelium.

The crypts are solid epithelial sprouts which grow outward from the floor and the outer wall of each fossa and become hollow through the degeneration of their center cells. These horny plugs being gradually expelled leaving the walls of the crypts open. The crypts or rather the walls of the crypts usually are in apposition with each other and normally are mere slits. They are seen as tubes and open only when they are infected and filled with exudate.

There are two types of tonsils. The pedunclated and the buried or retracted type of tonsils. This latter type has been referred to by some writers as the "button-like" tonsil in that the surface is flat and often smooth. The size of the root of the tonsil is determined by the type of the tonsil. The pedunculated having a small root while the retracted has a large root. The pedunculated type of tonsil is freely movable and comparatively easy of enucleation while the reverse is true of the retracted type. Because of the freely movable character and small root of the pedunculated type the Sluder Tonsillitome was perfected and in these cases it and its modifications are good types of instruments to use, but I do not think this type of instrument is applicable to every case of retracted tonsils.

A few years ago Dr. Canfield of Ann Arbor in speaking of the possible function of the tonsils made the statement that possibly the tonsils acted as a check-rein prohibiting a too rapid growth of the child. I am of the opinion this theory is correct, because of my observations of patients operated before as well as since I heard him make this statement. By way of clarifying and making more plain the theory of the check-rein action of the tonsil I can best illustrate by describing one of my nephews whose tonsils were removed about seven years ago. At the time of the operation this child was a "runt," in that he was decidedly under-developed and under-weight for his years. His father and all of his father's people were very small, his mother and his mother's people were less than average size. Today at eighteen years of age this boy stands about five feet eight and a half and weights 145 pounds and still growing. I am sure all of you can recall instances of the same character.

The chief blood supply of the tonsil is from the tonsilar and ascending palatine branches of the facial artery. It is a very vascular organ. It receives additional blood supply from the dorsalis linguae of the lingual, the descending palatine branches of the internal maxillary and from the ascending pharyngeal. The veins are of great importance as they may give rise to severe bleeding. They form plexus in the walls of the tonsilar sinus.

The lymphatics of the tonsils or rather lymphatic drainage of the tonsilar area are rather a complicated network. The afferent vessels lead to the tonsilar gland, a large gland placed just below the angle of the jaw and under the anterior border of the sterno-cleido-mastoid muscle. There are no afferent vessels to the tonsils, although it has been demonstrated that coloring matter injected into the turbinate bone of the nose, also into gums, has been found later in the substance of the tonsils. All of us have seen cases of acute tonsillitis following an infection of the nose.

Due to the fact that the tonsil is so bountifully supplied with blood and, also, the system of drainage of the lymphatics being so perfect it is easy to understand how infection in the tonsils might be carried and deposited in other parts of the body. I would like to report a few very interesting cases which illustrate, not only a careful examination of the tonsils, but their removal when found infected.

Case No. 1. D. S. Age 50. Married. Father of two grown children. Has never had any illness. Has always been healthy. Proprietor of a paint store. During this summer just passed he began to lose weight, became nervous and irritable, was unable to sleep and developed arthritic pains in his shoulders, back and lower limbs, it sometimes being necessary for him to take something for the relief of this pain. Later in the summer he developed sweating attacks each day about 4:00 a. m. He would perspire so freely it would be necessary to change the bedclothes as well as his night clothes. He was examined and was thought to be suffering with lead poisoning and was advised to go to Hot Springs, Arkansas, which he did. He spent three weeks in taking treatment and baths with no apparent results. He was referred to me about the first of August for an examination of tonsils. I found his tonsils undergoing atrophy and with great difficulty I was able to see the superior portion of his tonsils which was infected, in that there was a great deal of cheezy material, easily expressed from the crypts. Under general anesthetic his tonsils were removed. The sweats ceased immediately and did not reappear for about seven days when he again had a slight sweat. I did not see him then for about three weeks during which time he had progressed satisfactorily. About five weeks after the operation he developed a pharyngitis which again brought on the sweats. The sweats persisted for about five days. Treatment of the pharynx relieved this condition. His arthritis gradually diminished and he tells me now that the only time he ever feels any of the former pains is when he is climbing or descending a long ladder. Four weeks after operation this man had gained 28 pounds in weight, his appetite was back to normal and he relishes his food.

Case No. 2. Mrs. D. M. Age 30. Married. Housewife. Mother of one child. Came to me in October of this year with a sciatic rheumatism of right sciatic nerve. This rheumatism had been present about four weeks. I found her tonsils large, pedunculated, and infected, it not being necessary to press on the tonsils in order to extract pus from them. On operation when the tonsils were grasped with vulsullum forceps a large quantity of thick, creamy, ribbon-like pus came out of the body of the tonsil. The next morning the patient told me pains of the sciatic nerve had disappeared. It has not as yet reappeared at any time.

Case No. 3. Mrs. C. V. K. Married. Age 38. Housewife. Mother of two children. Had numerous illnesses and two abdominal operations. I have treated her during three attacks of acute frontal sinusitis without pus. About five months ago she developed a bursitis of the left knee joint and the distal joint of right index finger which were quite painful. An examination of her teeth and sinuses by X-ray showed no infection. Her tonsils were medium in size and infected. Pus was found to exude from the tonsils when they were pressed. No other foci of infection was found. The tonsils were enucleated and as sometimes happens after enucleation of infected tonsils or extraction of teeth she suffered quite a reaction and the bursitis was aggravated, and more painful than before the operation. Seven weeks after operation the bursitis of both joints had practically disappeared and there was no pain upon movement.

Case No. 4. Mrs. F. B. Age 40. Married. Housewife. Mother of one child. Very fleshy. Had had no illness but six months ago was taken sick with chills, fever, and a period of profuse sweating often times having as many as three profuse sweats during the night. Had arthritic pains scattered throughout the body with some involvement of the gall bladder. The teeth were infected and were extracted about three and one half months ago from which she derived no benefit. The tonsils were

examined and the right tonsil was found to have quite an exavation in superior pole from which pus was seen to exude. The left tonsil exuded pus under pressure. The tonsils were removed and for one week the patient was free of sweats and four weeks after the operation the patient had had one sweat and one chill only. All of the arthritic pains have disappeared. The nervousness has about disappeared and the appetite has returned.

Often times it happens after the removal of infected tonsils that the condition for which you operated is aggravated, and when this occurs the recovery of your patient is of necessity slow and will sometimes be several months before the condition is entirely corrected. I am sure this is due to the fact that the patient has become so saturated with the toxins that they are very slow in eliminating them.

None of the above patients had at any time had attacks of tonsillitis. I have not gone into as much detail in the description of these cases possibly as I should, but I believe it will give you the idea I wish to convey. *Namely*, that the tonsils are most certainly the most important foci of infection within our body and I will venture this assertion that if the surgeon would go carefully into the history and carefully examine the tonsils of each patient with acute or sub-acute appendicitis he would find that the patient had had or was having an acute attack of tonsillitis and that the tonsils were infected. Don't misunderstand me and think I am advocating the cure or eradication of appendicitis by the removal of the tonsils, but bear in mind the close relationship of the anatomical nature of the tonsils and the appendix, and when obscure conditions arise or you are in doubt as to the etiology of the condition examine your patient's tonsils carefully and maybe you will find that for which you seek.

TREATMENT OF CHOREA BY INDUCTION OF FEVER

Lucy Porter Sutton, New York (Journal A. M. A., Aug. 1, 1931), has treated twenty-four choreatic patients with intravenous injections of typhoid-paratyphoid vaccine as a means of producing fever. The results thus far have been good. There has been prompt cessation of the symptoms, and the course of the disease has seemed to be greatly shortened. In the cases reported the average duration after treatment was started was from eight to nine days. This treatment has been much more satisfactory than any other used at Bellevue Hospital on the Children's Medical Service. It appears to have definite advantages over phenyl-ethylhydantoin.

CASE REPORTS ON THE INTRA-NASAL OPERATION ON THE LACHRYMAL SAC

FRANK R. VIEREGG, M.D.
CLINTON

One of the disagreeable things that I have had to contend with, especially from the point of view of end results, has been those cases of acute purulent infection of the lachrymal sac. The thing that disturbed me was the fact that although the cases are a simple infection of the sac I did not feel that I could promise the patient that they would not, sooner or later, have a return of the painful abscess, or that they would be relieved of the annoying flow of tears over the face and its attendant train of symptoms.

In their effort to relieve the patient of the oft repeated painful abscesses that they had, a great many men have advocated the destruction of the sac. This has been done in a number of ways—dissection and cauterization, either chemical or galvanic, being the chief ones. This of course has left the patient with a constant flow of tears over the face the rest of their lives. But this condition in itself has disturbed the medical profession for a great many years as is evidenced by the fact that even Galen attempted an operation to establish a new channel of drainage for the tears into the nasal cavity. Woolhouse, an English surgeon, in 1650 tried introducing a gold cannula through the bone to prevent the closure of an artificial duct. Since that time a great many other operations have been devised and judging from the descriptions of many of the laborious pains taking methods they should have been successful.

I have found by inquiry, however, that few of us in Oklahoma have been doing anything other than simple drainage or even letting the abscess take its own course and hoping that there will not be a return of the abscess and letting the tears take their own course. Three years ago a patient presented herself to me with a well developed acute muco-purulent dacryocystitis. She gave the usual history of tearing for years with an occasional flare up of the acute abscess condition. She asked if I couldn't do something so that she wouldn't be bothered any more. I did not like to admit defeat without a trial so I told her that I could if she would let me operate on her tear sac from the inside of

her nose. I hastened to add that I was busy just then and that she was in no condition to be operated on any how that day. (You all know the method, I wanted to try to find out what was best to do).

In looking up literature I have and the texts I found that some men advocated doing an external operation and some an internal operation. In the external operation they advocated making an eliptical incision on the side of the nose at the level of the tear sac. Then the sac was dissected up and the bone removed into the nose. A flap was then made in the nasal mucosa and an incision made in the inner wall of the tear sac so that these flaps would match and then by suturing, these flaps were supposed to hold each other open.

Others advised practically the same thing from the inside of the nose. Imagine making a flap in the nasal mucosa away up in the nose at the level of the tear sac, and then in that flap making a window that would fit over a hole that you were to afterwards dissect through the bone. Besides this you were then to make some more trick incisions in the tear sac itself making flaps that could be sutured to the sides of the window in the flap of nasal mucosa. All of this to be done away up in the nose at the level of the tear sac. Since I have not had even the patience to sit down and work out a crossword puzzle that I could hold in my lap I did not have nerve enough to attempt all those hieroglyphics at the level of the tear sac on the inside of the nose.

In working with some wet specimens that I keep on hand I found out several very interesting facts. I found out that the bone lying over the tear sac was not very thick nor heavy except at the lower anterior margin of the sac. This crest of bone is the posterior lachrymal crest of the lachrymal bone. This part of the bone is hard, thick and strong. In one of my patients I found this part of the bone so hard and strong that I had to use a chisel and mallet to break it. In none of the specimens or patients that I have operated so far have I found it necessary to disturb the middle turbinate.

The thought then struck me that if the bone and mucosa were removed from an area larger than necessary to uncover the sac itself, and at the same time the sac were left in its natural bed with its inner half removed, I figured that as the mucosa healed up to the edges of the sac that the two might grow together. Whether or not this last supposition obtains or not I can not say, but I can say that judging from clinical results so far at least that the tears have at least not been running over the face like they did before.

During the time that I was working on these specimens my patient was bolstering up her courage and trying to get enough money to ride back to Clinton from her home which was only twenty miles away. I might add that twenty miles is not always enough distance to have between you and the first patient that you operate on.

In preparing for this operation I anesthetize the area all around the anterior end of the middle turbinate by the topical application of cocaine-adrenalin mud on cotton pledgets. In no case so far have I found it necessary to do anything other than that. With this anesthesia the patients complain of pain only when the sac itself is entered or grasped. I dissect away the mucosa and bone with ordinary straight curved Grunwald forceps. I might add that I locate the position to start dissection by measuring with a probe on the outside and inside of the nose and start my dissection at a point that would be the center of the sac. I then enlarge this in all directions so that I uncover an area larger than the sac itself. The hard thick crest of the lachrymal bone I remove in any way that I can. In some cases it is easily removed with the above mentioned instruments. In others I have removed it with a Kajeks forcep. And in still some others I found it necessary to use a chisel and mallet. It is necessary to remove this crest of bone in order to get a good exposure of the sac.

In those cases that are operated on during the acute stage with a lot of swelling it is an easy matter to push the sac into the nose with your fingers from the outside. In the others without this swelling to aid you I have found that about the easiest way to grasp the sac is with a right angled Yankhauer needle such as used in suturing the nasal mucosa. After getting a good hold of the sac with this needle I use an ordinary sharp paracentesis knife and cut off the inner half of the sac and leave the outer half of the sac attached to its natural bed so that that holds the sac open.

Since the middle turbinate is not disturbed I have not found very much blood

in any case as yet. Up to the present time I have not done anything to these patients afterward, no syringing, dressing, no packing, and so far I have had no infection. The only thing that I have these patients use afterwards has been an ephedrine spray to keep the nose more or less open so that there can be free drainage. There has been only one case in which I had any adhesions and that was in the patient that had a deflected septum towards that side. That however was not sufficient to block the drainage.

Patient No. 1. Mrs E. A. W., aged 69, came in with an acute attack of mucopurulent dacryo-cystitis. She gave a history of repeated attacks of the acute condition covering a period of 19 years or longer and with the customary tearing at all times. She had immediate relief from the pain and swelling and the epiphora. To date none of these symptoms have returned. She was operated on in August, 1928.

Patient No. 2. Rev. J. A., aged 78, came in with an acute attack of dacryocystitis which started about 4 days before entry, He had a large swollen inflamed mass at the inner canthus of his eye. He gave a history of having had repeated attacks of pain and swelling in this location over a period of many years. During this time he had had a constant flow of tears over his face. I operated him this same day under local anesthesia. He had immediate relief from the pain and swelling and all signs of inflammation were gone within 48 hours. He was operated on July 9th, 1929, and to date has had no return of the acute abscess condition and has tears only when out in the cold wind.

Patient No. 3. Mrs. M. H., aged 69. Came in complaining of attacks several times a day in which the eye would suddenly fill with a stringy purulent material and of tearing for a great many years. I advised operating but since she had been to "all the good men" in Oklahoma I had to argue with her for three months before she would submit to operation. I operated her in August, 1929, and since that time she has been free from pus and has tears only when she is out in the cold wind. At that time this eye waters a little more than the other eye.

Patient No. 4. J. M., a man in his early forties, has had more than his share of eye trouble. He lost his eye a great many years ago from the explosion of a gun. In the right eye he has had an old trachoma with all its attendant complications such as repeated corneal ulcers, entropion with trichiasis, and an old chronic purulent dacryocystitis with epiphora. During the last attack of corneal ulcer that he has had I was able to persuade him to let me do this intranasal operation only after his eye got so bad it looked like he had surely lost it. After drainage of the tear sac the corneal ulcer healed very rapidly. Now the only complaint he has besides the impaired vision from the many corneal scars that he has, is that this eye waters more than the other one when he is out in the cold wind.

Patient No. 5. Miss S. N., about 40 years of age. This patient came in with an acute attack of dacryocystitis. Her right eye was swollen nearly shut. She gave the usual history of tearing for years with an occasional sudden attack of pain and swelling that would close this right eye over night. To add complications to this case she has a highly deflected septum towards the affected. After operation all her symptoms cleared within a very few days. She was operated on January 12, 1931, and to date has not had a return of either the swelling or epiphora. She does have a new complaint however and that is that when she blows her nose the air comes up through the inner corner of the eye lid and splatters her glasses with tears. She does have more tears on this side of her face when she is out in the cold wind. I am finding this symptom in most of these cases.

Patient No. 6. J. R. J. This poor little fellow thinks he is about ten years of age. That is his apparent age. He was turned over to the ladies of the associated charities after he was found sleeping on back porches and eating anything that came his way. He had had a sore eye and some one opened it for him so he says. This left him with a fistulous tract from which tears and mocous would drain out in a constant stream over his face. A Wassermann was made on him with a four plus report. He was given a number of treatments for this but after the tears did not stop he was brought to me to see why. I found this fistulous tract connected with the tear sac. After operating on the tear sac under general anesthesia I made an eliptical incision around the fistulous tract and closed it with a single simple suture. This wound closed and healed so rapidly that there was not or has not been a tear on

his face since he was operated on. I removed the suture on the third day. I could find no evidences of syphilis except his Wassermann report and since the tears are no longer running over his face he is permitted to go to school and since the treatments for syphilis I think that the state orphange will now accept him as a patient. He was operated on April 23, 1931. I might add that general anesthesia adds greatly to the difficulty of this operation.

To summarize I might say that to remove the bone and mucosa from an area around the tear sac larger than enough to expose the sac, and then remove the inner half of the sac with the outer half left in situ will give clinical results that are very satisfoctory to the patient. I can recommend this operation for the following reasons:

1. It is easy to do and has no trick stitches or flaps to complicate it.

2. Can be done under either local or general anesthesia although easiest to do under local anesthesia.

3. There are no external dressings to take care of afterwards, no scars to show.

4. The results so far have been practically perfect and at their worst are better than simple drainage.

I recognize that this is too soon to say that the results will be permanent and this paper is presented to elicit comment and any help that I can get from your suggestions.

"WHEN, AS AND IF"

The bottle fed baby exhibits symptoms indicating partial vitamin B deficiency—described by Hoobler as (1) anorexia (2) loss of weight (3) spasticity of arms and legs (4) restlessness, fretfulness (5) pallor, low hemoglobin, etc.

Dextri-Maltose with Vitamin B may be used in adequate amounts (up to 71 Chick-Roscoe units) without causing digestive disturbance. This ethically advertised product derives its vitamin B complex from an extract of wheat germ rich in B and brewers yeast rich in G. Physicians who have attempted to make vitamin B additions to the infant's formula but who have been obliged to abandon same due to diarrheas or other unfortunate nutritional upsets, will welcome Mead's Dextri-Maltose with Vitamin B. This is a tested product with rich laboratory and clinical background and is made by Mead Johnson & Company, a house specializing in infant diet materials.

Not all infants require vitamin B supplements, but when the infant needs additional vitamin B, this product supplies it together with carbohydrates. In other cases, the carbohydrates of choice is Dextri-Maltose No. 1, 2 or 3.

UNUSUAL FOREIGN BODY IN LUNG —(PECAN CHIP)—CASE REPORT

ARTHUR H. DAVIS, M.D.
TULSA

Statistics of the Jackson Bronchoscopic Clinic show that carelessness is the chief cause of foreign body accidents[1].

The above being the rule in this case.

Case No. 1889. Mr. L., aged 73 years, reported to hospital, May 16, 1931, with his infant son aged 8 months with the following history:

11½ mm. in length—7 mm. wide—1 mm. thick

About 18 hours previously while making a "whistle" out of a pecan stick for one of his older sons his baby managed to get one of the chips in his mouth and promptly "swallowed" it. Difficulty in breathing was not so marked until several hours before coming to hospital.

Past History: Normal delivery, full term, breast fed infant. Influenza at three months, no other illness. On examination child seemed to be very sick, marked difficulty in breathing and perspiring freely. No cyanosis observed. Temp. 101 degrees rectal.

Physical Examination: Head, normal size and shape; hair-scalp-negative. Eye-ear-nose-negative. Throat-generalized redness-mucus; some dermatitis around mouth. Neck-negative. Thorax-respiratory movements labored. Mucous rales heard over left chest with diminished breath sounds. Apparently some enlargement left chest. Heart-regular-rapid. Abdomen-negative. Extremities-negative. Reflexes-normal. Skin-smooth-warm-damp. No lympho-adenopathies.

X-ray Report No. 5288. Radiological examination of the chest and neck shows no evidence of presence of foreign body,

but the lung appears to be in constant state of expansion. The child was removed to operating room and a 4 mm. by 30 cm. bronchoscope passed into lung. No anaesthesia. The foreign body was encountered below bifurcation on left side blocking off that side completely. The foreign body was removed and mucus aspirated from left side which seemed to be practically filled up. Child's breathing became less difficult and was discharged home on the following day apparently in good condition. Temperature to 99 degrees rectal.

Comment: An obstructive foreign body aspirated without knowledge of parents or nurse may closely simulate a true lobar pneumonia, and be diagnosed as such, leading to fatal termination. "True lobar pneumonia as the term is understood by internists has not occurred once in 500 cases of foreign body at the Bronchoscopic Clinic[3]."

Given a case with no history foreign body, with difficulty in breathing becoming progressively worse, with signs of a pneumonia and negative X-ray findings for foreign body, bronchoscopy should be done, as this would tend to clear up the diagnosis immediately and possibly be a life saving measure.

1. Arthur H. Davis, M.D., Springer Clinic; Marvin D. Henly, M.D., Medical Arts Bldg., Tulsa, Oklahoma. From Nose & Throat Service St. Johns Hospital, Tulsa, Oklahoma.

2. Nose, Throat and Ear and Their Diseases. Jackson-Coates. (Foreign bodies in the air and food passages. P. 1077).

3. Bronchoscopy and Esophagoscopy. Jackson 2nd Edition. Page 153.

PSYCHOCHEMISTRY: SOME PHYSICO-CHEMICAL FACTORS IN MENTAL DISORDERS

Walter Freeman, Washington, D. C. (Journal A. M. A., Aug 1, 1931), states that the application of another of the fundamental sciences to the study of behavior, namely biochemistry, is being witnessed today, and the designation psychochemistry is the natural result. Advances in a science emanate from those who, already versed in two different disciplines, work in the field of knowledge lying between them. Mere collaboration of two different experts will not be so productive, since neither can be completely in sympathy with the point of view of the other. Few biochemists are versed in phychiatry, however, and few psychiatrists have more than a bowing acquaintance with such terms as colloidal dispersion, interfaces, ionic dissociation and oxidation-reduction. Psychochemists, therefore, will be grounded in biochemistry as well as in psychiatry and will investigate the problems of normal and abnormal behavior from the standpoint of altered chemical reactions in that master tissue of the body, the central nervous system. The failure of microscopy to demonstrate structural alterations in the so-called functional psychoses is driving the investigator into new channels of research. The results of this activity are just beginning to appear and will grow tremendously in volume. What future accomplishments may be witnessed are beyond human power to foretell. Dementia praecox, manic-depressive psychosis, paranoia, epilepsy, represent four groups of disorders that rest on no constant well defined alteration in the histology of the nervous system. None can doubt, however, that there exists an underlying structural deviation, provided such a definition is pushed to its logical limits to include molecular and ionic imbalances. Probably the changes are much more gross than that and will be readily demonstrable when proper methods are applied. Such work as that already performed is sufficient to enable one to erect hypotheses concerning the probable underlying physicochemical mechanisms concerned in some of these major abnormalities. Most clearly indicated is the role of water balance in epilepsy, although this also involves such mechanisms as hydrion concentration, oxidation-reduction and salt equilibrium. Moreover, the role of defective oxidation in the nervous system in schizophrenia also rests on considerable evidence, and the striking parallels, from the chemical standpoint, between the phases of manic-depressive psychosis and the hibernation cycle of certain mammals, point to same phasic alteration in colloidal dispersion and electric potential. In view of its newness the author makes a survey of the field, and the possibilities of its future development. He emphasizes that there are certain biochemical processes associated with disorders of behavior, and that if one is equipped with a knowledge of their workings one may be able, by supplying deficiencies, by preventing excesses, by controlling periodic shifts in various equilibriums, to bring about artifically conditions that approach the normal. The psychochemist has a large order.

RATS AS CARRIERS OF MEXICAN TYPHUS FEVER

Herman Mooser, M. Ruiz Castaneda and Hans Zinsser, Boston (Journal A. M. A., July 25, 1931), recovered virus indistinguishable from the ordinary virus of tabardillo, or Mexican typhus fever, from the brains of rats trapped in Mexico City in locations where cases of typhus fever had occurred, and during a period in which a moderate epidemic of typhus fever was prevalent. This work is a direct confirmation of the evidence obtained indirectly through fleas by Dyer of the existence of a reservoir of typhus fever in rats and confirms the original suggestion made by Maxcy, in 1926, in regard to the epidemiology of the North American disease. The belief that the virus recovered from the rats is identical with that of Mexican typhus fever is based on typical reactions in guina-pigs, with elevated temperature and testicular swelling, the presence of characteristic Rickettsia, immunity reaction and the development of Weil-Felix agglutination reactions in inoculated rabbits. The manner of possible transmission of the disease from rats to man is being investigated by an analysis of the insects found on the rats and in the houses where typhus fever has occurred. This work is being continued in Mexico City and will be reported on at a later date. Also, the frequency with which rats infected with typhus fever can be found cannot be judged until many more animals have been collected, this communication being merely in the nature of a preliminary report.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Memorial Station, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

THE UNIVERSITY HOSPITAL AND CHIROPRACTIC MUDDLE

On July 27th, 1931, the Governor issued an executive order that a chiropractor be admitted to the University Hospital for the purpose of treating a patient in the free teaching service. This was done immediately after a telephone conversation with Dr. LeRoy Long, Dean, with the Governor refusing to permit Dr. Long to present reasons opposing such an order, and which order Dr. Long protested most earnestly and vigorously. Two or three days later the President of the University, advised Dr. Long that the Governor had turned the entire matter over to the Board of Regents to be settled according to law. It was then urged that the President of the University ask the Board of Regents to meet and take action, the President later advising that he was unable to get the Board together.

On August 1, 1931, a meeting of the Council and others interested was held in Oklahoma City and a committee composed of the President and two ex-presidents of the Association was appointed for the purpose of urging the Board of Regents to try to bring about an early meeting. Doctors Long and Horace Reed, the next day, earnestly requested the President of the University to have an early meeting of the Board of Regents, but the President advised that he was not able to get the members of the Board together, that they felt that the matter should be put off, and an effort made to "smooth things over." Though the President of the University repeatedly urged the Board of Regents to hold a meeting nothing was done. The President finally advised on August 6th that he was unable to get the Board to meet; that the Board had not indicated when a meeting would take place, but that it would not be very early; that he was leaving in two days for a vacation.

In the meantime the chiropractor was going to the hospital, students were asking for their credits, interns were greatly disturbed, and the general morale was bad.

After careful consideration, on August 7th, Dr. Long called the faculty together, briefly went over the situation, telling them he would resign the next day, and advised them to elect a chairman so they might consider the emergency in an orderly manner. This was a very trying time for Dean Long, for about a score of those in the meeting were with the school when he took charge of it about sixteen years ago. Many feeling speeches were made in which Dr. Long was urged to reconsider his decision. A motion expressing confidence and urging him to remain was passed unanimously, but Dr. Long thought that it was best under the situation, that he resign, and for the following reasons:

1. The Governor had, by a formal executive order, interferred with the fundamental functions of the school and hospital without giving the faculty an opportunity to be heard.

2. Dr. Long felt that his resignation

was the only possible way to secure prompt action by the Board of Regents.

3. It was necessary to emphasize the actual scope and purpose of legitimate medicine as opposed to the cults.

The resignation went in August 8th and it was almost immediately announced there would be a meeting of the Board of Regents on August 12th. Dr. Long and his committee, under authority given them by the Council, employed Ex-Justice of the Supreme Court, Thomas H. Owen, who, after exhaustive investigation, prepared a brief in which he stated that, under the law, the cults could not be admitted to University Hospital.

The Board of Regents met at the School of Medicine on August 12th, and by a vote of 5 to 2 the cults were excluded from University Hospital. Dr. Long's resignation was formally accepted, and Dr. L. J. Moorman, Oklahoma City, a most estimable member of the profession was elected dean.

It is only fair to say that the President of the University, Dr. Bizzell, as well as the members of the Board of Regents were anxious to do everything legally possible in the interest of the School of Medicine, but apparently, they were unable to understand the necessity of prompt action if the standing of the School was to be preserved.

The Journal feels unfitted to outline and estimate the tremendous work Dr. Long has performed in his capacity as Dean of the Medical School. He not only holds the great respect, confidence and friendship of the entire medical profession of Oklahoma but hundreds of the leading men in the medical profession outside the State regard Dr. Long, not only as a leader of medicine in Oklahoma, but as a leader of the greatest ability of the medical profession in the United States. Under the circumstances the best has been done that possibly can be, but it seems impossible that the action of the Governor, or his interpretation of the law, has not done the University incalculable harm. Dr. Long has been the prime mover in bringing the School of Medicine to a rank, second to none in the country. The University Hospital was erected solely and only upon the urging of Dr. Long and his friends, who felt such a hospital necessary in order to secure for the medical school its A-Grade rating, which it has now held for many years. Very few people understand that if chiropractors or other cultists are permitted to enter that hospital that the school will at once be discredited, that its graduates will not be permitted to appear before any State Board for examination, in fact a more serious injury to the school could not occur. The entire performance has been one of the most unfortunate things that could occur to injure the medical school.

Dean Moorman will have the support of every member of the Medical Association of Oklahoma. The cults will be kept out of that school if it is legitimately possible to keep them out, but if they are permitted to enter its doors will soon be closed as a medical school.

PLANS FOR THE 1932 SESSION

The following arrangements have been made for the 1932 session of the Oklahoma State Medical Association. All meetings, including the General Session, the morning General Scientific Sections, Eye, Ear, Nose and Throat, General Surgery, General Medicine and Exhibits, will be in the Hotel Mayo, which is in position to supply more space than we have ever had at any Tulsa meeting. In addition to this the next annual session will have one day or as much thereof as is necessary, devoted to Dermatology, X-ray and allied subjects and the same amount of time to Pediatrics.

The time of the meeting will be May 9, 10, 11, 1932.

ANNUAL FALL CLINICS

The annual fall clinics of the Oklahoma City Clinical Society, noted elsewhere in the Journal, will be held in that city, November 2, 3, 4, 5, 1931.

Meetings of this type have rapidly become very popular with the medical profession and of great use to the hundreds of physicians who attend as well as a great economical saving by reason of the fact that much work is condensed into a short space of time and presented by brilliant leaders of medicine and surgery in such a manner that the attendants receive the greatest possible good from them.

Oklahoma City is too well known as a medical center to need comment in order to induce physicians to attend such a meeting as this conference will be. A glance at the list of distinguished guests who will

be present and present clinics is sufficient warranty to the physician who contemplates attending that his visit will be more than worth while.

Editorial Notes—Personal and General

DR. PAT FITE, Muskogee, spent the month of August in Minnesota.

DR. F. E. SADLER, formerly of Henryetta and Durant, is now located in Coalgate.

DR. O. E. TEMPLIN, Alva, has returned from Colorado, where he spent the summer.

DR. R. L. MITCHELL, Muskogee, spent the month of August in the Canadian Rockies.

DR. L. B. WINDHAM, Okmulgee, has moved to Tyler, Texas, where he will reside after September 1st.

DR. W. C. VERNON, Okmulgee, will spend eight months taking a special course in surgery at Vienna.

DR. E. P. DAVIS, Oklahoma City, spent June and July at Michael Reese Hospital, Chicago, taking courses in diseases of the heart and circulation.

DR. AND MRS. E. D. RODDA, Okmulgee, have departed for Europe, where Dr. Rodda will spend six months or a year studying in Vienna and Budapest.

DR. E. RANKIN DENNY, Tulsa, announces the removal of his office to Suite 809 Medical Arts Building. Practice limited to internal medicine, especial attention to hay-fever, asthma and allied allergic diseases.

DR. F. A. HARRISON and family, Ardmore, have left for Boston, where Dr. Harrison has received an appointment at the Massachussetts General Hospital for nine months in the children's department. He will take work under Dr. Fritz Talbot, professor of pediatrics at Harvard.

JACKSON COUNTY MEDICAL SOCIETY met in June at Altus for their regular meeting. Dr. J. T. Lowe, Mangum, presented a paper on "Pediatrics, Hygiene and Diseases of Children." Dr. B. N. Collier, Tipton, gave an interesting discussion on fracture of large bones and presented two of his patients for illustration.

DOCTOR ROBERT H. HENRY

Dr. R. H. Henry, pioneer physician of Ardmore, died June 29, at the Von Keller Hospital of heart disease. Funeral services were held at Harvey Brothers Funeral Home. Dr. Charles C. Weith of the First Presbyterian Church conducting the services. The Knight Templars formed an escort at the cemetery, directed by the Masonic fraternity.

Dr. Henry was born in Wurzem, Germany, December 24, 1860, where he attended school and graduated from the Doenges College in 1878, coming to America in 1883. He engaged in the drug business in the state of Texas and later entered the University of Nashville, Tenn., where he graduated from the medical school in 1896. He returned to Europe after graduation where he spent a year taking a general course in Leipsic.

Dr. Henry has lived in Ardmore for more than 30 years.

He is survived by his wife, and two children.

BOOK REVIEWS

The Blood Picture. And its clinical Significance (Including Tropical Diseases) a guidebook on the microscopy of blood. By Professor Dr. Victor Schillimg, Physician in Chief of the First Medical University Clinic, Charite, Berlin. Translated and edited by R. B. H. Gradwohl, M.D., Director of the Pasteur Institute of St. Louis, and the Gradwohl School of Laboratory Technique, St. Louis, Mo.; Lieutenant Commander Medical Corps (Fleet) United States Naval Reserve. 7th and 8th revised edition with 44 illustrations and 4 color plates. St. Louis, Mo. The C. V. Mosby Co., 1929. Price $11.00.

A fascinating book which should be in the library of the modern physician. The title "Blood Picture" is a very apt one. The illustrations are excellent. Using the colored plates in the back of the book, the reader can follow the detail picture which the author elaborates in part 3 "Fundamental Principles for Clinical use of the blood picture." In part 1 Technic, no mention is made of Wright's stain which is probably the most commonly used stain in American laboratories.

Part 4 selected clinical examples are given which adds additional value to the book. The translator, Dr. Gradwohl, has rendered the English reading a great service. The method of presentation is very logical. One is always interested to read the succeeding pages and see what it has to surprise the reader.—F. J. Wilkiemyer.

The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 11, No. 3. (New York Number—June, 1931.) 239 pages with 73 illustrations. Per clinic year (February, 1931 to December, 1931.) Paper, $12.00; Cloth, $16.00. Philadelphia and London: W. A. Saunders Company, 1931.

This is a splendid issue. The following are unusual and remarkable works: "Rupture of the Kidney" by Dr. Winfield Scott Pugh: "Splenectomy For Thrombocytopenic Purpura" by Dr. Edward J. Donovan; "Some Common Rectal Disorders—Newer Considerations in Treatment" by Dr. Frank M. Frankfeldt; "The Coexistence of Perforated and Bleeding Duodenal Ulcers" by Dr.

Benjamin N. Berg; "Meeting of the New York Committee of American Surgeons" conducted by Drs. William Darrach and Clay Ray Murray; "Marginal or Jejunal Ulcers" by Dr. J. William Hinton.

The Collected Papers of the Mayo Clinic and The Mayo Foundation For 1930. Volume XXII. Edited by Mrs. Maud H. Mcllish-Wilson, Richard M. Hewitt, B.A., M.A., M.D., and Mildred A. Felker, B.S. Octavo Volume of 1125 pages with 234 illustrations Philadelphia and London: W. B. Saunders Company, 1931. Cloth, $13.00 net.

This issue numbers 482 papers, 85 reprints in full, 30 are abridged, 55 are abstracted and 312 are only given by title. The papers of the Mayo Clinic are looked forward to each year as great contributions to each physician of medicine and surgery. This volume like its predecessors will be of great use to every type of practitioner of medicine and surgery.

Nutrition and Diet in Health and Disease: By James S. McLester, M.D., Professor of Medicine at the University of Alabama, Birmingham, Alabama. Second Edition, Revised and Reset. Octavo of 891 pages. Philadelphia and London: W. B. Saunders Company, 1931. Cloth, $8.50 net.

Doctor McLester notes that few departments of medicine have made such strides as the science of nutrition. This new edition includes recent discoveries concerning vitamins, minerals, and deficiency diseases, have occasioned many additions, and changes have been necessary in the discussions of diabetes, obesity, gout, and the disorders of digestion. Among the added sections are those dealing with the toxemias of pregnancy, food poisoning, irritable colon, and protozoan infections. Many sections were rewritten dealing with enzymes, protein requirement, epilepsy, and diseases of the blood.

To the general practitioner and internist as well as the surgeon nutrition and diet must constantly be borne in mind. We believe this book will aid those seeking formulae.

Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus: By Louis A. Buie, B.A., M.D., F.A.C.S., Section on Proctology, The Mayo Clinic, Rochester, Minnesota, and As-

REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

Examination held at State Capitol, Oklahoma City, June 11th and 12th, 1931.
The following applicants passed:

Name	Year of Birth	Place of Birth	School of Graduation	Year of Graduation	Home Address or Previous Location
Burt, James Houston (Col.)	1901	Atlanta, Ga.	Meharry Med.	1930	Okmulgee, Okla.
Farrar, William Preston	1905	Big Sandy, Tex.	Baylor Med.	1929	Durant, Okla.
Goodwin, Joseph Lee	1876	Tenn.	Southern Med.	1898	Shawnee, Okla.
Hall, Gilbert Hoke	1872	Illinois	N. Y. Univ. & Bel.	1901	Tulsa, Okla.
Holloway, Thos. Renley	1873	Alabama	Grant Univ.	1903	Stonewall, Okla.
Proctor, Carter Atwater	1888	Doniphan, Mo.	Washington	1912	Tulsa, Okla.
Stevenson, Charles Calvert	1905	Baltimore, Md.	Univ. Md.	1929	Fairfax, Okla.
Oliver, Hardy P.	1861	Alabama	Little Rock Med.	1908	Ivanhoe, Tex.
Phelps, Malcom Elza	1905	El Reno, Okla.	Univ. Iowa	1929	El Reno, Okla.
Rodrigues, Mamiliano J.	1905	Reyusa, Mexico	Univ. of Okla.	1931	Hidalgo, Tex.
Reed, Emil Patrick	1905	Guthrie, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Devanney, Phil J.	1907	Denison, Tex.	Univ. of Okla.	1931	Sayre, Okla.
Emenhiser, Lee Kenneth	1906	Davidson, Okla.	Univ. of Okla.	1931	Frederick, Okla.
Hughes, Horton Ernest	1907	Shawnee, Okla.	Northwestern	1930	Shawnee, Okla.
Hyroop, Muriel Evadne (F)	1895	Toronto, Canada.	Univ. of Toronto	1928	Okla. City, Okla.
Heiligman, Haskell	1908	Hugo, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Cassidy, John McCarty	1905	Chandler, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Bargar, John Blanchard	1905	Wayne, Okla.	Univ. of Okla.	1931	Purcell, Okla.
Sehested, Herman Chas.	1901	Nebraska	Univ. of Okla.	1931	Okla. City, Okla.
Driver, George Lyman	1898	Helena, Mo.	Harvard Med.	1929	Ponca City, Okla.
Ward, Delbert Audray	1904	Marshall, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Nicholson, James L.	1904	Missouri	Univ. of Okla.	1931	Okla. City, Okla.
Lemon, Cecil Willard	1903	Wyandotte, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Powell, Tracy O.	1903	Patmos, Ark	Univ. of Okla.	1931	Okla. City, Okla.
Sanger, Paul G.	——	Yukon, Okla.	Univ. of Okla.	1931	Choctaw, Okla.
Reeves, Claude L.	1893	Durant, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Sheppard, Mary Sawyer (F)	1894	Hardy, Tex.	Rush Med.	1931	Okla. City, Okla.
Hoot, Paul Monroe	1905	Genda Spgs, Kan.	Univ. of Okla.	1931	Ponca City, Okla.
Ford, Joseph Wesley	1904	Hokes Bluff, Ala.	Univ. of Okla.	1931	Hokes Bluff, Ala.
Johnson, Raymond LeRoy	——	Muldrow, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Harris, Frank Marshall	1907	Antlers, Okla.	Univ. of Okla.	1931	Antlers, Okla.
Springer, Homer C.	1908	Tuscaloosa, Ala.	Univ. of Okla.	1931	Clayton, Ala.
Kimball, Melvin Clinton, Jr.	1908	St. Louis, Mo.	Univ. of Okla.	1931	Tulsa, Okla.
Keller, Wilbur Floyd	1895	Ellsworth, Kan.	Univ. of Okla.	1931	Okla. City, Okla.
Tool, Charles Donovan	1902	Edmond, Okla.	Univ. of Okla.	1931	Edmond, Okla.
Little, Aaron Chalfant	1907	Hereford, Tex.	Univ. of Okla.	1931	Okla. City, Okla.
Woodwon, Fred Edward	1896	Staunton, Va.	Univ. of Okla.	1931	Okla. City, Okla.
Kuhn, John Frederick, Jr.	1907	Okla. City, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Shuller, Elbert Henderson	1902	Ozark, Ark.	Univ. of Ark.	1929	Ozark, Ark.
VanValkenburgh, G. M.	1903	Deer Creek, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Barrow, Llewellyn L.	——	McGreagor, Tex.	Univ. of Okla.	1931	Okla. City, Okla.
McGhee, Charles L.	1900	Chickasha, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Burleson, Hopson Ned	1903	Wortham, Tex.	Univ. of Okla.	1931	Okla. City, Okla.
Birge, Jack Paul	1906	Kiowa, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Herrmann, Jesse Duval	1907	Dennison, Tex.	Univ. of Okla.	1931	Britton, Okla.
Clanin, James Olin	1902	Asherville, Kan.	Univ. of Okla.	1931	Crescent, Okla.
Hazel, Onis George	1900	Norman, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Finch, James William	1908	Carmi, Ill.	Univ. of Okla.	1931	Okla. City, Okla.
Brightwell, Gaines L.	1906	Washington, Ark.	Univ. of Okla.	1931	Okla. City, Okla.
Curry, Roy Lee	1905	Hollis, Okla.	Univ. of Okla.	1931	Okla. City, Okla.
Mitchell, Clarence	1897	Walnut Tree, Ark.	Univ. of Okla.	1931	Norman, Okla.
Cook, Odis A.	1905	Oklahoma	Univ. of Okla.	1931	Binger, Okla.
Ryan, Warren Albert	——	Hickory, Okla.	Univ. of Okla.	1931	Norman, Okla.
Boatright, Lloyd Cecil	1900	Conw'y Spgs, Kan.	Univ. of Okla.	1931	Okla. City, Okla.
Hood, James O'Leary	1907	Breckenridge, Tx.	Univ. of Okla.	1931	Norman, Okla.
Anderson, William Douglas	1904	Claremore, Okla.	Univ. of Okla.	1931	Okla. City, Okla.

sociate Professor of Surgery The Mayo Foundation, University of Minnesota, Minneapolis, Minnesota. Octavo of 178 pages with 72 illustrations. Philadelphia and London: W. B. Saunders Company, 1931. Cloth $3.50 net.

As we have before noted if there is anything neglected from the minor to the most serious conditions it is those affecting the rectum and anus. They run the whole gamut from the simplest external thombotic hemorrhoid to the gravest malignancies. This monograph is finely illustrated and presents the technique so successfully used in rectal conditions at the Mayo Clinic.

Transaction of the College of Physicians of Philadelphia. Third series, Volume Fifty Second, issued by the College for 1930.

This is the annual publication of the College of Physicians and contains a great deal of data with reference to its membership, necrology and memoirs, as well as a considerable number of articles on various medical and surgical subjects. It also contains the proceedings of various sections and reports of different meetings of the society during the year.

An Introduction to Gynecology. By C. Jeff Miller, M.D., Professor of Gynecology, Tulane University School of Medicine; Chief of the Department of Gynecology of Touro Infirmary; Senior Visiting Surgeon, Charity Hospital, New Orleans. Illustrated. Price $5.00. C. V. Mosby Company, 1931.

This is a small compact practically illustrated volume on gynecology, written by a master of the modern concepts of gynecology.

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Nowata		S. P. Roberts, Nowata
Okfuskee	L. J. Spickard, Okemah	J. A. Kennedy, Okemah
Oklahoma	J. M. Alford, Okla City	K. J. Parks, Okla City
Okmulgee	W. S. Watson, Okmulgee	M. B. Glismann, Okmulgee
Osage	M. Karasek, Shidler	M. E. Rust, Pawhuska
Ottawa	F. V. Meriwether, Miami	W. G. Chesnut, Miami
Pawnee		
Payne	C. E. Sexton, Stillwater	R. E. Roberts, Stillwater
Pittsburg	W. W. Sames, Hartshorne	F. L. Watson, McAlester
Pontotoc	E. A. Canada, Ada	W. F. Dean, Ada
Pottawatomie	J. I. Gaston, Shawnee	F. Clinton Gallaher, Shawnee
Pushmataha	D. W. Connally, Clayton	John S. Lawson, Clayton
Rogers	A. M. Arnold, Claremore	W. A. Howard, Chelsea
Seminole	T. H. Briggs, Wewoka	H. A. Kiles, Konawa
Stephens	C. C. Pruitt, Comanche	D. Long, Duncan
Texas		R. B. Hayes, Guymon
Tillman	Coyne H Campbell, Frederick	J. C. Reynolds, Frederick
Tulsa	Henry S. Browne, Tulsa	Carl F. Simpson, Tulsa
Wagoner		John D. Leonard, Wagoner
Washington	H. G. Crawford, Bartlesville	J. V. Athey, Bartlesville
Washita		C. B. Sullivan, Colony
Woods	J. E. Hammer, Kiowa, Kans.	O. E. Templin, Alva
Woodard		C. J. Forney, Woodward

NOTE—Corrections and additions to the above list will be cheerfully accepted.